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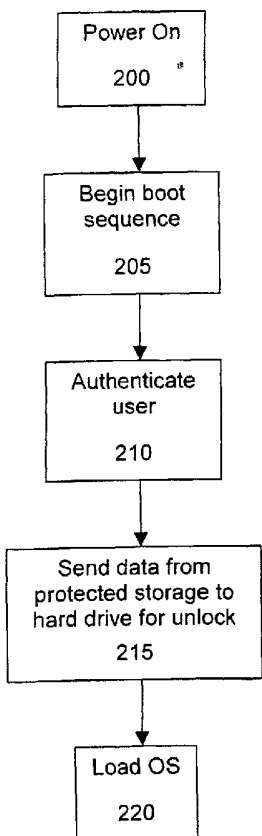
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- (71) Applicant: INTEL CORPORATION (A DELAWARE CORPORATION) [US/US]; 2200 Mission College Boulevard, Santa Clara, CA 95052 (US).
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[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR UNLOCKING A COMPUTER SYSTEM HARD DRIVE



(57) Abstract: For one embodiment of the present invention, a protected storage device of a computer system includes a password stored therein. Instructions may be included on the computer system to authenticate the user. Once authenticated, the password may be transferred to a hard drive where it may be used to unlock the drive. Subsequent to unlocking the drive, an operating system may be loaded. For one embodiment of the present invention, the drive may be relocked by reducing the voltage supplied to the drive in accordance with a power management policy. The drive may be again unlocked by re-authenticating the user and transferring the password from protected storage to the drive.

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A. CLASSIFICATION OF SUBJECT MATTER IPC 7 G06F1/00				
According to International Patent Classification (IPC) or to both national classification and IPC				
B. FIELDS SEARCHED				
Minimum documentation searched (classification system followed by classification symbols) IPC 7 G06F				
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched				
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, IBM-TDB				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	EP 0 770 997 A (NCR INT INC) 2 May 1997 (1997-05-02) abstract column 1, line 20 - line 23 column 2, line 44 - line 50 column 3, line 7 - line 11 column 3, line 21 - line 32 column 3, line 53 - line 56 column 4, line 26 - line 52 --- -/--	1-3, 5, 10-13, 16, 17, 19-21		
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. </td> <td style="width: 50%; border: none;"> <input checked="" type="checkbox"/> Patent family members are listed in annex. </td> </tr> </table>			<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.	<input checked="" type="checkbox"/> Patent family members are listed in annex.
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"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family			
Date of the actual completion of the international search <p style="text-align: center; font-size: 1.2em;">11 November 2003</p>		Date of mailing of the international search report <p style="text-align: center; font-size: 1.2em;">04/12/2003</p>		
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer <p style="text-align: center; font-size: 1.2em;">Alecú, M</p>		

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 02/37575

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>WO 01 60013 A (LAUPER ERIC ; FERCHICHI AZIM (CH); SWISSCOM MOBILE AG (CH)) 16 August 2001 (2001-08-16)</p> <p>page 1, line 1 - line 5 page 3, line 3 - line 5 page 3, line 9 - line 13 page 7 -page 18</p>	1-3,5, 10-13, 16,17, 19-21
X	<p>GB 2 340 630 A (VIRCON LIMITED) 23 February 2000 (2000-02-23) page 3, line 24 - line 34 page 9, line 24 - line 26 figure 2</p>	1
X	<p>US 5 375 243 A (STUFFLEBEAM KENNETH W ET AL) 20 December 1994 (1994-12-20)</p> <p>column 2, line 9 - line 30 column 4, line 13 - line 21 column 4, line 49 - line 63 column 6, line 10 - line 13 column 6, line 15 - line 36 column 9, line 52 - line 65 column 10, line 35 - line 45</p>	1-3,5, 10-12, 14,16, 17,19-21
X	<p>"HARD DISK DRIVE DATA SECURITY PROTECTION METHOD" IBM TECHNICAL DISCLOSURE BULLETIN, IBM CORP. NEW YORK, US, vol. 38, no. 5, 1 May 1995 (1995-05-01), page 73 XP000519501 ISSN: 0018-8689 the whole document</p>	1,10,16, 19,20
A	<p>"HARD DISK DRIVE ACCESS PASSWORD SUPPORT FOR POWER MANAGEMENT" IBM TECHNICAL DISCLOSURE BULLETIN, IBM CORP. NEW YORK, US, vol. 37, no. 11, 1 November 1994 (1994-11-01), page 639 XP000487362 ISSN: 0018-8689 the whole document</p>	10
A	<p>US 5 212 729 A (SCHAFER RANDY J) 18 May 1993 (1993-05-18) figure 2 the whole document</p>	1,4

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 02/37575

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>US 6 012 146 A (LIEBENOW FRANK W) 4 January 2000 (2000-01-04)</p> <p>column 2, line 49 - line 51 column 3, line 11 - line 25 column 3, line 35 - line 48</p> <p>---</p>	<p>1-3,5, 10-13, 16,17, 19-21</p>
A	<p>US 6 012 145 A (STEWART ALEC DONALD ET AL) 4 January 2000 (2000-01-04)</p> <p>column 1, line 16 - line 18 column 2, line 58 -column 3, line 3 column 2, line 35 - line 44 column 3, line 46 - line 49 column 4, line 6 - line 22</p> <p>---</p>	<p>1-3,5, 10-13, 16,17, 19-21</p>
A	<p>US 5 884 026 A (KONG WON-KEUN) 16 March 1999 (1999-03-16)</p> <p>column 1, line 24 - line 27 column 1, line 61 -column 2, line 17 column 2, line 66 -column 3, line 4 column 3, line 61 - line 64 column 4, line 33 - line 65 column 5, line 44 - line 51</p> <p>-----</p>	<p>1-21</p>

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 02/37575

Patent document cited in search report	A	Publication date	Patent family member(s)	Publication date
EP 0770997	A	02-05-1997	EP 0770997 A2 JP 9212427 A US 6012146 A	02-05-1997 15-08-1997 04-01-2000
WO 0160013	A	16-08-2001	AU 6422200 A WO 0160013 A1 EP 1254547 A1 US 2003012382 A1	20-08-2001 16-08-2001 06-11-2002 16-01-2003
GB 2340630	A	23-02-2000	AU 3836499 A EP 1078311 A1 WO 9959049 A1 JP 2002514807 T	29-11-1999 28-02-2001 18-11-1999 21-05-2002
US 5375243	A	20-12-1994	NONE	
US 5212729	A	18-05-1993	NONE	
US 6012146	A	04-01-2000	EP 0770997 A2 JP 9212427 A	02-05-1997 15-08-1997
US 6012145	A	04-01-2000	AU 1030795 A WO 9514265 A1 GB 2298943 A ,B	06-06-1995 26-05-1995 18-09-1996
US 5884026	A	16-03-1999	GB 2303721 A ,B US 6069953 A US 5983352 A US 6243813 B1	26-02-1997 30-05-2000 09-11-1999 05-06-2001